COORDINATED KNOB AND DISPLAY FOR NAVIGATION OF HIERARCHICAL AND RANGE SELECTORS

RELATED APPLICATION DATA

This invention is related to U.S. Patent Application Serial No. _____, titled "Inkjet Stylus," filed _____, and to U.S. Patent Application Serial No. _____, titled "Digital Messaging Pen," filed _____, both commonly assigned.

FIELD OF THE INVENTION

This invention pertains to a selection device.

BACKGROUND OF THE INVENTION

Over the years, many different types of selection devices have been used in many different arts. For example, with Swiss-movement watches, a knob is used to adjust the time set on the watch. For use with computers, mice, light pens, and touch screens have all been used. But all of these devices are limited by the fact that the motions used to select an item from a list are not intuitive to the list itself. For example, with reference to the Swiss-movement watch, the knob used to set the time is rotated in one plane, which is orthogonal to the plane in which the hands of the watch move.

The present invention addresses this and other problems associated with the prior art.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a selection device according to an embodiment of the invention.

FIG. 2 shows the procedure used by the selection device of FIG. 1 to navigate a menu.

DETAILED DESCRIPTION

FIG. 1 shows a selection device according to an embodiment of the invention. In FIG. 1, selection device 105 includes knob 110 and display 115. Knob 110 is used to navigate a menu stored within selection device 105. Twisting knob 110 (as shown by arrow 120) allows a user to view the different choices within the menu. Pushing or pulling knob 110 (as shown by arrows 125) allows the user to select or reject a current choice in the menu.

A person skilled in the art will recognize that either pushing or pulling knob 110 may be used to select or reject a selection, but it is more intuitive to push knob 110 in the direction of selection device 105 to select a menu choice.

As the user navigates the menu using knob 110 (both by twisting knob 110 as shown by arrow 120 and by pushing or pulling knob 110 as shown by arrow 125), display 115 is updated to reflect the current choice. Thus, as the user twists knob 110 as shown by arrow 120, display 115 scrolls up/down to reflect the change in the selection, "rotating" the selection in display 115 to correspond with the rotation of knob 110 as shown in arrow 120. Then, when the user selects or rejects a selection, display 115 scrolls left/right to reflect the selection or rejection of a choice in the menu.

The menu navigated by the user is stored in memory 130. The menu may be stored initially when selection device 105 is manufactured, or the menu may be installed later, depending on the use of selection device 105. The menu may be fixed and unchanging, or it may be updated over time as needed. If the menu may be updated over time, selection device 105 may include a mechanism for updating the menu. For example, in the embodiment shown in FIG. 1, selection device 105 may include plug 135 to which a second device may be connected. The menu update may then be downloaded from the second device (which may be a computer or any other device with which selection device 105 may interoperate). Alternatively, in a second embodiment, the mechanism for updating the display may include wireless receiver 140, which may be used to receive updates to the menu.

The menu may have only a single level (with one or more selections), or it may have multiple levels. If the menu has multiple levels, then some selections within the menu will cascade to a lower level menu. Accepting these selections will open the lower level menus. Conversely, if the user is at a lower level menu and rejects a selection, the user will be brought to a higher level menu.

Although selection device 105 is described above containing a menu, a person skilled in the art will recognize that other user interface mechanisms may be used. For example, selection device 105 may be used to select a value from a range, to select a color from a list, or to increment or decrement digital value. These other user interface mechanisms may be part of the menu system.

Although selection device 105 is a self-contained device, the selection from the menu may perform an action. In this case, selection device 105 may be included as part of another device. Two examples of ways in which selection device 105 may be incorporated into other devices are described in related U.S. Patent Application Serial No. _____, titled "Inkjet

Stylus," filed _____, and U.S. Patent Application Serial No. _____, titled "Digital Messaging Pen," filed _____. Alternatively, selection device 105 may interact with a second device, either via plug 135 or via a wireless transmitter, included with wireless receiver 140.

FIG. 2 shows the procedure used by the selection device of FIG. 1 to navigate a menu. At block 205, the user navigates the menu via the knob. This includes changing the selection or selecting or rejecting a choice. At block 210, the display is updated to reflect the changes made by the user when navigating the menu. At this point, if the user is not finished navigating the display, the procedure may return to block 205. Otherwise, if there is an action associated with the selection, then at block 215 the selection device performs the associated action. This may include transmitting information from the selection device to a second device. A person skilled in the art will recognize that performing an action is not necessary, and block 215 may be skipped.

Having illustrated and described the principles of my invention in an embodiment thereof, it should be readily apparent to those skilled in the art that the invention can be modified in arrangement and detail without departing from such principles. I claim all modifications coming within the spirit and scope of the accompanying claims.